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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

AGGARWAL, YOGESH K

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 07/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/769,721

Applicant(s)

SPEARS ET AL.

Examiner

Yogesh K. Aggarwal

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9 is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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Claim Objections

1. Claims 1, 5, 7 and 9 are objected to because of the following informalities: The term 'multiplexed' is not defined in the specification to convey its meaning to one of ordinary skilled in the art. The charges are transferred one after another into the charge shift register which is not the same as multiplexing. Therefore the word multiplexing should be replaced by transferring charges in the claims.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Parulski et al. (US Patent # 5,440,343).

[Claim 1]

Parulski teaches an array of photosensors (figure 4 array 40, specifically red and blue color in lines 1 and 2), to light, a first time [During motion mode frames are read at a rate of 30 frames per second, therefore a first frame is read as exposing to light a first time] activating a particular section of a charge transfer gate (charge transfer gate corresponding to gates 1-4 is read as a charge transfer gate, vertical transfer gates 44 wherein any one section i.e. any of gate 1 to gate 4 can be activated. Col. 5 lines 32-57 disclose turning on only gate 1 to read image line 1 or only gate 4 to read image line 2), where the charge transfer gate has a plurality of sections (each gate

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is read as a particular section), each section individually controllable (each of the gates is individually controllable), and fewer than all sections are activated transferring charges (any one of the gates can be turned off), transferring charges from a block of the photosensors through the particular section of the charge transfer gate, to a charge shift register (horizontal register 42, specifically R/B is read as a charge shift register),

exposing, the array of photosensors, to light, a second time [During motion mode frames are read at a rate of 30 frames per second, therefore the second frame is being broadly read as exposing to light at a second time (1/30 sec later). During the second frame the same charges will be transferred, from the block of photosensors (e.g. red and blue in lines 1 and 2) through the particular section of the charge transfer gate (gate 1), to the charge shift register, where only the charges from the block are transferred, so that the charges from the block of photosensors, from more than one exposure, are simultaneously multiplexed onto the charge shift register [During second frame, the transfer of charges from the same block of photosensor takes place e.g. Col. 5 lines 32-57 disclose turning on only gate 1 to read image line 1 or only gate 4 to read image line 2. As shown in figure 4 the charges are being simultaneously being transferred from line 1 or line 2. The term 'multiplexed' has been interpreted as selecting any of the charges corresponding to pixels and transferring to a charge shift register through charge transfer gates].

4. Claim 5 is rejected under 35 U.S.C. 102(b) as being anticipated by Yu (US Patent # 5,345,319).

[Claim 5]

Yu teaches a method of scanning comprising exposing, first (figure 2, blue 5) and second arrays (figure 2, red 3) of photosensors to light, transferring charges, from a first contiguous block of

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photosensors (the blue color array comprises a contiguous first block of photosensors) in the first array of photosensors (figure 2, blue 5), to a charge shift register (figure 2, element 1), wherein the block comprises less than all the photosensors (blue color pixels comprise less than the total number of all the photosensors RGB), and only charges from the first block are transferred; transferring charges from a second contiguous block of photosensors (the red color array comprises a contiguous second block of photosensors) in the second array of photosensors (figure 2, red 3), to the charge shift register (figure 2, element 1, it is noted that the charges are transferred to the same charge shift register as the first block), where only the charges from the second block are transferred, so that charges from contiguous block from more than one array of photosensors are simultaneously multiplexed onto the charge shift register (col. 3 line 64- col. 4 line charges from the first block of photosensors comprised of blue color pixels in a first array of photosensors 5 transfer charges to the charge shift registers 1 and the block of red pixels 3 simultaneously comprise less than all the photosensors RGB and these charges are multiplexed in the SHIFT register 1. Yu discloses that the signal charges generated in PD arrays 30 and 50 are integrated for a predetermined time period and then shifted to the HCCD analog shift register 10 which would be obvious to one skilled in the art that they are being simultaneously to the charge shift register).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

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international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claim 7 is rejected under 35 U.S.C. 102(e) as being anticipated by Parulski (US Patent # 5,668,597).

[Claim 7]

Parulski et al. teaches a method of transferring charges from a block of photosensors to a charge shift register (for e.g. regions 80, 82 and 84 shown in figure 5 are used to transfer charges to a horizontal register 60, col. 8 lines 33-38). The block comprising sensors 80, 82, 84 is less than all the photosensors. The number of photosensors is also less than the number of stages in the charge shift register because it does not include all the charges in a horizontal row [The total number of stages in the charge shift register will be equal to at least a row of pixels]. Parulski further teaches that when a value of contrast is not acceptable, numerous cycles are used to calculate a value corresponding to a maximum contrast (col. 8 line 39-col. 9 line 4, figures 8 and 9) and therefore reads on repeating the step of transferring charges until the charge shift register is filled with charges from only from the block of photosensors. [It is noted that the claim is broad and only recite 'until the charge shift register is filled with charges from only from the block of photosensors' and does not say 'until the charge shift register is completely filled with charges from only from the block of photosensors'].

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parulski et al. (US Patent # 5,440,343).

[Claim 2]

Parulski teaches in figure 9 (second embodiment) that charge clearing structures are present in first and last 128 columns. The charges are only transferred from the middle of the array to be outputted which is a block of contiguous charges (col. 7 lines 37-46). Therefore taking the combined teachings of first and second embodiment of Parulski, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to have charges transferred from a block of photosensors in order to facilitate the readout of images with different aspect ratios.

[Claim 3]

Parulski does not explicitly teach transferring charges from alternate photosensors within a block of contiguous photosensors. However Official Notice is taken of the fact that it is notoriously well known transferring charges from alternate photosensors within a block of contiguous photosensors in order to have a faster readout. Therefore taking the combined teachings of Parulski and Official Notice, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to transfer charges from alternate photosensors within a block of contiguous photosensors in order to have a faster readout.

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parulski et al. (US Patent # 5,440,343) as applied to claim 1 above and in further view of Hynecek (US Patent # 6,459,077).

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[Claim 4]

Parulski teaches the limitations of claim 1 but fails to teach "... shifting charges, within the charge shift register, at a lower than normal shift rate". However Hynecek teaches that these limitations are well known and used in the art (col. 3 lines 35-43). Therefore taking the combined teachings of Parulski and Hynecek it would have been obvious to one skilled in the art at the time of the invention to have been motivated to shift charges at a lower than normal shift rate. The benefit of doing so would be to improve the bucket brigade charge transfer efficiency to be similar to that expected of typical CCD devices as taught in Hynecek (col. 3 lines 35-37).

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yu (US Patent # 5,345,319) as applied to claim 5 above and in further view of Hynecek (US Patent # 6,459,077).

[Claim 6]

Yu teach the limitations of claim 1 and 7 but fails to teach "... shifting charges, within the charge shift register, at a lower than normal shift rate". However Hynecek teaches that these limitations are well known and used in the art (col. 3 lines 35-43). Therefore taking the combined teachings of Yu and Hynecek it would have been obvious to one skilled in the art at the time of the invention to have been motivated to shift charges at a lower than normal shift rate. The benefit of doing so would be to improve the bucket brigade charge transfer efficiency to be similar to that expected of typical CCD devices as taught in Hynecek (col. 3 lines 35-37).

11. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parulski et al. (US Patent # 5,668,597) as applied to claim 7 above and in further view of Hynecek (US Patent # 6,459,077).

[Claim 8]

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Parulski teaches the limitations of claim 7 but fails to teach “.... shifting charges, within the charge shift register, at a lower than normal shift rate”. However Hynecek teaches that these limitations are well known and used in the art (col. 3 lines 35-43). Therefore taking the combined teachings of Parulski and Hynecek it would have been obvious to one skilled in the art at the time of the invention to have been motivated to shift charges at a lower than normal shift rate. The benefit of doing so would be to improve the bucket brigade charge transfer efficiency to be similar to that expected of typical CCD devices as taught in Hynecek (col. 3 lines 35-37).

Allowable Subject Matter

12. Claim 9 is allowed.

13. The following is a statement of reasons for the indication of allowable subject matter:

The prior art fails to suggest fairly a method of scanning comprising exposing, first and second arrays of photosensors to light; transferring charges, from a first block of photosensors in the first array of photosensors, directly to a charge shift register without any intervening charge shift registers, wherein the block comprises less than all the photosensors, and only charges from the first block are transferred: shifting, in the charge shift register, the charges from the first block of photosensors transferring charges, from a second block of photosensors in the second array of photosensors, directly to the charge shift register without any intervening charge shift registers, into the stages of the charge shift register previously occupied by the charges from the first block of photosensors before shifting, where only the charges from the second block are transferred so that charges from blocks from more than one array of photosensors are multiplexed onto the charge shift register.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yogesh K. Aggarwal whose telephone number is (571) 272-7360. The examiner can normally be reached on M-F 9:00AM-5:30PM.


15. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571)-272-7593. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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16. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

YKA

July 25, 2005


DAVID L. OMETZ
PRIMARY EXAMINER